

## CLAIMS

We claim:

1. A 4-stroke internal combustion engine that incorporates a mono-shaft multi-valve

5 operating system, the system comprising:

a first cam follower assembly configured to operate an intake valve of the engine;

a second cam follower assembly configured to operate an exhaust valve of the engine;

and

a cam follower channel assembly comprising a base circle channel circumferentially cut

10 in a crank web of the engine, a cam channel circumferentially cut substantially parallel to the

base circle channel, a channel crossover cut to provide channel interconnectivity between the

base circle channel and the cam channel, wherein when the first cam follower assembly is

slideably engaged to the cam channel the exhaust valve is operated during a first-half rotation of

the crank web, and wherein when the second cam follower assembly is slideably engaged to the

15 cam channel the intake valve is operated during a second-half rotation of the crank web.